ASTRAGALECTOMY FOR TUBERCULOSIS OF THE TARSUS.

(From the Orthopedic Clinic of Stanford University.)

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Tuberculosis of the tarsus or of the ankle always has been considered a most unfavorable disease for treatment. The best authorities in the past have recommended either extensive resections or amputation. The results of conservative treatment are extremely unsatisfactory. The peculiar structure of the tarsus, with its numerous small spongy bones and its several synovial cavities, renders the spread of the disease very easy, and its elimination by treatment extremely difficult. To determine the extent of the morbid process with any reasonable degree of certainty is practically impossible. Under the old theory of operating, unless every portion of tuberculous tissue were removed at operation, the operation would be useless.

Following out the ideas recently promulgated, that if the character of the bone marrow could be changed from lymphoid to fatty, tuberculosis no longer could exist in the bone, ankylosing operations have been devised and successfully carried out in joint tuberculosis, more especially of the knee, of the hip, and of the spine. On account of the peculiar structure of the ankle, mentioned above, the prospect for cure is possibly not so good in the ankle as in the other joints. In the following case an attempt was made to put these ideas into practice:

The patient is a shoemaker 25 years of age, who gave a history of having sprained his right foot about one and a half years previously, that is, about three years ago. The "sprain" was followed by pain, swelling, and disability. He was treated at first by passive hyperemia, then by baking. Later the diagnosis of tuberculosis was made and the disease was demonstrated radiographically in the posterior talo-calcaneal joint. Then followed a series of operations, such as bone scraping and removal of tuberculous foci in the talus. A laboratory examination showed tuberculosis microscopically. A secondary infection took place, and sinus formation was established. When first seen in October, 1913, the foot was moderately swollen, and presented a discharging sinus on its lateral aspect, below the lateral malleolus.

With but little hope of success, on account of the probable extent of the disease and the complicating pus infection, but with the possible chance of avoiding amputation, astragalectomy was determined upon, and was done October 5, 1913, at the Lane Hospital. The incision was the usual curved one on the lateral aspect of the foot. The ankle joint and the talo-navicular seemed normal, but the talo-calcaneal joint was badly involved. The talus was removed. The under surface of the tibia, the medial surface of the lateral malleolus, the upper surface of the calcaneus, and the posterior surface of the navicular were all freshened. Following out Whitman's idea, an attempt was made to subluxate the foot backward, but this attempt was not successful. In view of the presence of secondary infection the wound was drained. The foot was put up at right angles to the leg, in plaster of paris, with a window over the site of operation. A microscopical examination showed bone tuberculosis. The subsequent course of the case can be gathered from the notes.

Oct. 28, 1913—New Plaster dressing. No window.

Nov. 25, 1913—Patient can walk around and bear some weight on the foot.

Dec. 12, 1913—Plaster removed; slight discharge; new plaster.

Feb. 14, 1914—Complains of pain; plaster removed; some motion in the new ankle; sinus is healed.

Feb. 18, 1914—Sinus still healed; no evidence of active disease; plaster of paris.

Mar. 20, 1914—Plaster of paris removed.

Mar. 30, 1914—Small amount of motion present in the ankle; no pain, muscular spasm, or evidence of active disease.

May 5, 1914—Patient says he has pain when he remains seated too long in his business of shoemaking; must walk 4-5 miles a day in order to be comfortable!!

July 6, 1914—Patient in fine condition. Foot in slight calcaneus; about 20° of motion in ankle; slightly sensitive beneath lateral malleolus. This is the only sign of activity.

On March 8, 1915, when the patient was shown at the Cooper Clinical Society meeting, he was in excellent condition and presented no sign of active disease. His foot is in slight calcaneus. Bony anchylosis, even after the expiration of 17 months, had not taken place.

Now, it often has been said in discussions upon joint tuberculosis, that, after resection, the disease disappears on account of the complete rest afforded, and the resultant bony anchylosis, but complete rest *per se* is not the essential factor in the treatment, does not cure the disease, and is not necessary. In resections of the hip, with removal of the head, followed by dislocation of the stump of the femur on the dorsum of the ilium, anchylosis does not take place, and yet, if secondary infection be avoided, resection cures hip tuberculosis in the adult. It is doubtful if, even in the knee, bony ankylosis takes place until at least 18 months have elapsed, and yet knee joint tuberculosis in the adult can be cured by resection in much less time than 18 months.

Let it be emphasized again that the correct procedure in operations upon tuberculous joints in the adult is the destruction of the joint. With the destruction of the joint, the character of the bone marrow at the site of operation changes, the synovial membrane disappears, and tuberculosis can no longer flourish in that locality. Encapsulated tubercles may persist for years, but occasion no trouble so long as there is no true joint. Recent writers, notably Baer and Osgood, have shown that arthroplastic operations are capable, even after years, of lighting up the disease afresh. No joint, no lymphoid marrow and synovial membrane. No lymphoid marrow and synovial membrane, no joint tuberculosis.

Conclusion: To cure joint tuberculosis in the adult, destroy the joint.

BOOK REVIEWS

Field Hospital and Flying Column. Being the Journal of an English Nursing Sister in Belgium and Russia. By Violetta Thurstan. Published by G. P. Putnam's Sons, London and New York. 1915. Price $1.00.

An entertaining hour may be spent with this short sketch of the experiences of a Nursing Sister who got glimpses of "war at the front" in the present struggle in Europe. Her life in a Field Hospital in Belgium, though interesting, is not so